

Id #:
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Class: EMBRYOLOGY
Time:

Course #: EMB978

Test Key:	BBAAABBBBB	BABBAABBBB	BABBCABCAD	ADEABAABDB	EDDCAACEEA
Items 1-50:	1234567890	1234567890	1234567890	1234567890	1234567890
Student's Answers:	A**B*****	***A*****A	****B*****	****C***B*	A*BA*C**A*

Test Key:	CAABABBBCA	DCEEAEBDEE			
Items 51-100:	1234567890	1234567890	1234567890	1234567890	1234567890
Student's Answers:	**C*****	*****D****			

EXAM 1 Form A

Possible Points: 70
Raw Score: 56
Objective Score: 56

CUMULATIVE

Possible Points: 70
Raw Score: 56
Percent Correct: 80.0%

EMBRYOLOGY
FIRST MID-TERM EXAMINATION
25 SEPTEMBER 1997

NUMBER OF QUESTIONS 70
QUESTIONS 1 TO 23

NAME Andy Duke

MARK A IF STATEMENT IS TRUE
MARK B IF STATEMENT IS FALSE

- F — 1. The mediastinum is derived from the intraembryonic coelom.
- F 2. A teratogenic substance in contact with the conceptus during the first week of development would most likely damage the endodermal germ layer.
3. At the end of the eighth week of development, the majority of organogenesis has been completed.
- 4. Trophoblastic tissue may function without the presence of an embryo/fetus.
5. Trophoblastic tissue is a portion of the conceptus.
- F 6. Implantation is normally being completed approximately two weeks after the Last Normal Menstrual Period.
- F 7. In a female whose ovarian-uterine cycle is usually 28 days in length, ovulation should occur 14 day following the cessation of the menstrual period (flow).
8. The endometrium is best able to nourish and/or accept an implanting conceptus during the day following ovulation.
- 7 26 38 — 9. Parturition normally occurs 266 days following the beginning of the Last Normal Menstrual Period.
10. Endothelial cells which line blood vessels are derived from the endoderm germ layer.
11. The epithelial cells of the respiratory system are derived from the mesoderm germ layer.
- T 12. The smooth muscle of the gut is derived from the same germ layer as skeletal muscle of the body wall.
- 13. Neural crest tissue arises from intraembryonic mesoderm.
14. The notochord is composed primarily of cells directly derived from the adjacent mesoderm.
15. Teratogenic substances in contact with the embryo/fetus during the 9th to 16th post-fertilization weeks of development could produce morphologic changes within the central nervous system.
16. As a result of the embryonic foldings, the heart is situated ventral (anterior) to the digestive tract.
17. As a result of the embryonic foldings, the communication between the intraembryonic and extraembryonic coeloms is completely obliterated.
18. As a result of the embryonic foldings, the pericardioperitoneal canals are situated anterior to the heart.
- 19. As a result of the embryonic foldings, the aortic arches are situated lateral to the neural tube.

MARK A IF STATEMENT IS TRUE
MARK B IF STATEMENT IS FALSE

- F — 20. As a result of the embryonic foldings, the septum transversum is situated anterior (ventral) and lateral to the digestive tract.
- F 21. According to the cranial-caudal growth gradient, the feet would be the last region of the body to undergo development.
- T 22. The zona pellucida assists in determining ~~the~~ when the implantation process may begin.
- F 23. Human chorionic gonadotrophin can be detected in maternal serum during the first week following fertilization. *during the whole first week or during maybe the last day of the first week (after implantation)?*

QUESTIONS 24 TO 51 SINGLE BEST ANSWER

24. The primary yolk sac is ^{lined with} ~~line with~~ cells derived from the

- S
- A. epiblast of inner cell mass
 - B. hypoblast of inner cell mass
 - C. cytotrophoblast
 - D. A and B are correct
 - E. A, B, and C are correct

C 25. A large portion of the stomach is found in the posterior mediastinum of a newborn baby. A possible cause of this would be a

- C
- A. failure of muscle and connective tissue development in the septum transversum and anterior body wall adjacent to the sternum.
 - B. failure of growth and fusion of the left pleuroperitoneal membrane with the surrounding tissues.
 - C. failure of muscle and connective tissue development in the dorsal mesentery of the esophagus.
 - D. A and B are correct
 - E. A, B, and C are correct

I 26. The skeletal muscle fibers that are found at the periphery (costal and vertebral attachments) of the diaphragm receive their motor innervation from branches of

- A. cervical spinal nerves (C3, C4, C5).
- B. lower thoracic spinal nerves (T7 - T12).
- C. upper lumbar spinal nerves (L1 - L3).
- D. A and B are correct
- E. A, B, and C are correct

27. Crossing-over, translocation, and non-disjunction phenomena are most apt to occur in human reproductive cells during

- A. mitosis
- B. meiosis I
- C. meiosis II
- D. all of the above (A-C)
- E. none of the above (A-C)

28. Replication of DNA normally does not occur in human reproductive cells prior to

- A. mitosis
- B. meiosis I
- C. meiosis II
- D. all of the above (A-C)
- E. none of the above (A-C)

29. Is normally completed before birth in reproductive cells found in the human ovary

- ☒ A. mitosis
- B. meiosis I
- C. meiosis II
- D. A and B are correct
- E. A, B, and C are correct

30. Is normally completed external to the human gonad

- A. meiosis I
- B. meiosis II
- C. Both A and B are correct
- D. Neither A nor B is correct

31. A young girl has been diagnosed as having Down's syndrome due to an occurrence of crossing-over and nondisjunction (partial trisomy). Of the cells tested by karyotyping, all demonstrated the chromosomal abnormality. The uneven exchange of genetic material most likely occurred

- A. during gametogenesis of one of the parents
- B. during a mitotic division of the zygote or early blastula.
- C. Both A and B are correct
- D. Neither A nor B is correct

32. The intraembryonic coelom

- ☒ A. normally communicates with the chorionic cavity (extraembryonic coelom).
- ☒ B. separates somatic intraembryonic mesoderm from splanchnic extraembryonic mesoderm.
- ☐ C. is lined with cells derived from the endodermal germ layer.
- D. A and B are correct
- E. A, B, and C are correct

33. Primordial germ cells originate in the

- A. wall of the primary yolk sac.
- B. mesoderm of the connecting stalk.
- C. cytotrophoblast.
- D. embryonic gonad.
- E. None of the above

34. Activities that work to prevent fertilization of the female reproductive cell by more than one spermatozoan include:

- ☒ A. chemical changes in zona pellucida.
- ☒ B. spermatozoan inhibitors released by the corona radiata cells.
- C. spermatozoan inhibitors released by the female reproductive cell.
- D. A and B are correct
- E. A, B, and C are correct

35. Ovarian follicular cells may become

- A. a portion of the zona pellucida.
- B. a portion of the corpus luteum.
- ☒ C. the female reproductive cell.
- D. A and B are correct
- E. A, B, and C are correct

36. The cavity of the blastula (blastocoel) becomes a portion of the

- ☒ A. lumen of the primary yolk sac.
- ☒ B. lumen of the chorionic cavity (extraembryonic coelom).
- ☒ C. lumen of the amniotic cavity.
- D. A and B are correct
- E. A, B, and C are correct

37. Which of the following are correct statements concerning embryonic induction?

- ☒ A. It requires a receptive cell population.
- ☒ B. The period in which inducing agents may work is usually of indefinite length.
- ☒ C. An induction process may be carried out by widely separated tissue components.
- D. A and B are correct
- E. A, B, and C are correct

38. The majority of the syncytiotrophoblast is formed from cells of the

- ☒ A. inner cell mass of blastula.
- ☒ B. outer cell mass of blastula.
- C. maternal endometrial cells.
- D. A and B are correct
- E. A, B, and C are correct

39. The original edge of the embryonic disc

- ☒ A. becomes umbilical ring situated on the ventral body wall.
- ☒ B. is the point(s) of transition between the intraembryonic ectoderm and the epithelium of the amnion.
- C. differentiates into the septum transversum.
- D. A and B are correct
- E. A, B, and C are correct

40. The mother-to-be usually begins to detect fetal movements during the time period of ___ weeks following fertilization.

- ☒ A. 9 - 12
- ☒ B. 17 - 20
- C. 26 - 29
- ☒ D. 30 - 34

41. Examination of materials in amniotic fluid obtained by amniocentesis permits the evaluation of

- ☒ A. fetal genetic characteristics.
- ☒ B. development/maturation of the fetal respiratory system.
- ☒ C. development of the fetal nervous system.
- D. A and B are correct
- E. A, B, and C are correct

42. Ultrasonography permits the evaluation of

- ☒ A. fetal cardiac function.
- ☒ B. fetal sex.
- ☐ C. fetal blood abnormalities such as erythroblastosis fetalis.
- ☐ D. A and B are correct
- ☐ E. A, B, and C are correct

43. Which of the following often produce congenital defects?

- ☐ A. Vitamin A (retinoic acid) in low doses for long periods of time
- ☒ B. Antineoplastic (chemotherapeutic) drugs
- ☒ C. Small doses of acetylsalicylic acid (aspirin)
- ☐ D. A and B are correct
- ☐ E. A, B, and C are correct

44. Usually a result of mechanical forces placed upon the embryo.

- ☒ A. **Malformation**
- ☒ B. Disruption
- ☒ C. Deformation
- ☒ D. Dysplasia

45. A teratogenic substance is usually most injurious to the embryo/fetus

- ☐ A. during the time when cells are undergoing rapid proliferation.
- ☒ B. during weeks 15 and 16 of development.
- ☒ C. before implantation has occurred.
- ☐ D. A and B are correct
- ☐ E. A, B, and C are correct

46. At the end of the fifth week of embryonic development, all of the following should be present EXCEPT the

- ☐ A. supracardinal veins.
- ☐ B. foramen secundum.
- ☒ C. interventricular foramen.
- ☐ D. third pair of aortic arches.
- ☐ E. primary bronchi.

47. The first three stages of lung development are similar in that they

- ☒ A. each show evidence of the presence of surfactant.
- ☒ B. all are incapable of supporting extrauterine respiration.
- ☐ C. are all approximately equal in length (12 weeks).
- ☒ D. all contain at least a few alveoli.
- ☒ E. all contain a dense capillary bed.

48. Polyhydramnios is often associated with

- A. unequal branching of the patterns in the respiratory tree.
- B. nonunion of the endocardial cushions.
- C. coarctation of the aorta.
- D. ventricular septal defect involving the membranous septum.
- E. tracheoesophageal fistula.

49. Blood vessels develop independently in the

- ☒ A. extraembryonic mesoderm of the connecting stalk.
- ☒ B. extraembryonic mesoderm of the chorion.
- C. Intraembryonic mesoderm.
- D. A and B are correct
- E. A, B, and C are correct

50. The musculature of the heart is derived from

- A. intraembryonic splanchnic mesoderm.
- B. intraembryonic somatic mesoderm.
- C. Both A and B contribute to the heart.
- D. Neither A nor B contributes to the heart.

51. The fluid in the chorionic cavity is in direct contact with

- A. cells that migrated from the hypoblast of the inner cell mass and have remained in their original postmigration position.
- B. cytotrophoblastic cells.
- C. extraembryonic mesoderm.
- D. A and B are correct
- E. A, B, and C are correct

QUESTIONS 52 TO 56

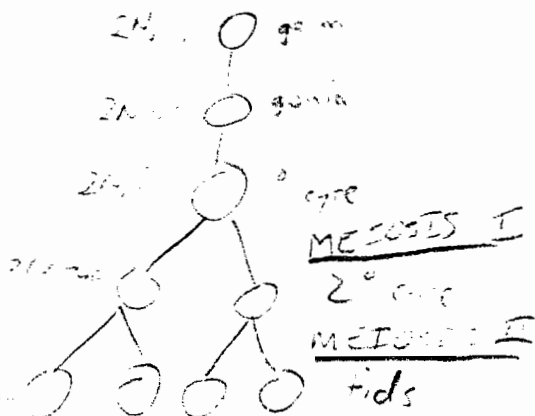
- A. Gametogenesis in human female
- B. Gametogenesis in human male
- C. Both A and B are correct
- D. Neither A nor B is correct

52. Cells released from gonad possess a haploid number of double (duplicated) chromosomes.
53. Chromosomal appearance is the same for all cells released from gonad.
54. General morphologic appearance is same for all cells released from gonad.
55. Cells released from gonad contain a mitotic (meiotic) spindle.
56. Mitotic activity occurs throughout reproductive life.

QUESTIONS 57 TO 62

- A. Diploid, $2N$
- B. Diploid, $4N$
- C. Haploid, $1N$
- D. Haploid, $2N$

57. Normal interphase somatic cell — *what stage of interphase?*
58. Primary oocyte, one year after birth of female in which it lies. *in prophase of Meiosis I*
59. Nucleus of spermatid
60. Spermatogonia in one-year-old male child
61. First polar body
62. Second polar body



QUESTIONS 63 TO 70

Use the following list of structures found in the embryo to answer the questions. A choice may be used once, more than once, or not at all.

- | | |
|----------------------------------|--------------------------------|
| ✓ 1. Right horn of sinus venosus | 11. Right first aortic arch |
| ✓ 2. Right vitelline vein | 12. Right second aortic arch |
| ✓ 3. Left vitelline vein | ✓ 13. Right third aortic arch |
| ✓ 4. Right umbilical vein | ✓ 14. Left third aortic arch |
| ✓ 5. Left umbilical vein | ✓ 15. Right fourth aortic arch |
| ✓ 6. Right postcardinal vein | ✓ 16. Left fourth aortic arch |
| ✓ 7. Left postcardinal vein | ✓ 17. Right fifth aortic arch |
| ✓ 8. Subcardinal veins | ✓ 18. Left fifth aortic arch |
| ✓ 9. Precardinal veins | ✓ 19. Right sixth aortic arch |
| ✓ 10. Foramen primum | ✓ 20. Left sixth aortic arch |

Cut + Paste
is it that hard?

63. No remnant can be found in the adult for all of the following EXCEPT

- A. 2 - IVC
 B. 10 foramen primum
 C. 17 R 5th
 D. 18 L 5th
 E. 20 L 9th aortic

64. The coronary sinus develops from

- A. 1 R horn of sinus venosus
 B. 3 L vitelline
 C. 5 L vitelline
 D. 8 subcardinal
 E. None of the above (A-D)

left common
cardinal v.

65. All of the following are involved in developing blood flow of the head and/or upper limb EXCEPT

- A. 8 - subcardinal IVC
 B. 9 precardial v.
 C. 13 R 5th
 D. 14 L 5th
 E. 16 L 4th

66. Which of the following is associated with development of blood vessels for the lungs?

- ~~A.~~ 7 L postcard vein - not artery
~~B.~~ 15 R 4th Aortic arch - not the one
~~C.~~ 19 R 6th - gone
D. 20 L 6th - ductus arteriosus
E. More than one of the above (A-D)

67. Which of the following contributes to the formation of the arch of the aorta?

- ~~A.~~ 14 L 3rd - not a
B. 16 L 4th
~~C.~~ 18 L 5th - not a
~~D.~~ 20 L 6th - not a
E. More than one of the above (A-D)

68. The left subclavian artery would be derived from which of the following?

- A. 14 L 3rd 7th intersegmental
B. 16 L 4th
C. 18 L 5th
D. None of the above (A-C)
E. More than one of the above (A-C)

69. Liver vasculature is derived from which of the following?

- A. 2 R vit v. both vit v.
B. 3 L vit v.
C. 6 R post card v.
D. 7 L post card v.
E. More than one of the above (A-D)

70. Vessels emptying directly into the sinus venosus include all of the following EXCEPT

- A. 2 R vit v.
B. 3 L vit v.
C. 4 R vit v.
D. 5 L vit v.
E. 6 R post card v.